

Remarks

This Application has been carefully reviewed in light of the Final Office Action dated January 28, 2010. Applicants believe all claims are allowable without amendment and respectfully provide the following remarks. Applicants respectfully request reconsideration and allowance of all pending claims.

I. Consideration of Previously-Submitted Information Disclosure Statement (IDS)

Applicants timely filed an IDS on March 26, 2008, as evidenced by Acknowledgement Receipt EFS ID No. 3055216 and e-filer via RAM Confirmation No. 9911. It appears, however, that the Examiner has not considered the references cited in the timely-filed IDS. Applicants respectfully request that the Examiner consider the references cited in the IDS dated March 26, 2008, and, in the event a patent issues on this Application, that these references be printed on the face of the issued patent. *See, e.g.*, 37 C.F.R. § 1.97; M.P.E.P. ch. 609. Applicants respectfully request that the Examiner confirm in the next written communication that the Examiner has considered each reference cited in the IDS (e.g., by initialing next to each reference on the PTO-1449 form that accompanied the IDS). Furthermore, Applicants respectfully request a copy of the PTO-1449 form for the IDS indicating the Examiner's consideration of all of the cited references.

II. Independent Claims 1, 12, and 23 and their Dependent Claims are Allowable over the Proposed *Blumrich-Prael* Combination

The Examiner rejects Claims 1-3, 9, 12-14, 23-25, and 34-36 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Publication No. 2004/0103218 A1 by Blumrich, et al. ("*Blumrich*") in view of U.S. Patent 7,065,764 B1 to Prael, et al. ("*Prael*"). Applicants traverse the rejections and discuss independent Claim 1 as an example.

The rejection of Claim 1 is improper at least because the proposed *Blumrich-Prael* combination fails to disclose, teach, or suggest each element of Claim 1. For example, as discussed in Applicants' previous Response, the proposed *Blumrich-Prael* combination fails to disclose, teach, or suggest "a plurality of cluster agents, each cluster agent associated with one of a plurality of nodes, each node comprising a switching fabric integrated to a card and at least two processors integrated to the card," as recited in Claim 1.

Blumrich generally discloses a supercomputing system that includes computing nodes and I/O nodes. (Fig. 5; ¶ 0057). *Blumrich* discloses that the computing nodes and I/O nodes have Ethernet and Infiniband ports for connecting to external Ethernet and Infiniband switches. (Fig. 2; ¶¶ 0065-67, 0259). For example, *Blumrich* discloses that a separate, external 100 Mbps Ethernet switch connects a subset of computing nodes to each other and to an I/O node. (Fig. 5; ¶¶ 0057, 0066, 0079, 0146). In addition, *Blumrich* discloses that a separate, external Gigabit Ethernet or Infiniband switch connects the I/O node to an external RAID system. (Fig. 5; ¶¶ 0067, 0081). Thus, *Blumrich* discloses Ethernet and Infiniband switches that are separate from and external to the computing nodes and I/O nodes. Merely disclosing switches that are separate from and external to computing nodes and I/O nodes does not teach, suggest, or disclose “a plurality of nodes, **each node comprising a switching fabric integrated to a card**” as recited in Claim 1.

The cited portions of *Prael* do not appear to cure this deficiency of *Blumrich*. *Prael* generally discloses a system that manages clusters of parallel processors. (Col. 1, ll. 53-56). *Prael* describes a “cluster” as a collection of stand alone computers that may work together as a single integrated computing resource. (Col. 4, ll. 7-20). Specifically, the cited portion of *Prael* states:

A cluster is a type of parallel or distributed processing system consisting of a collection of interconnected stand alone computers (called "nodes") working together as a single integrated computing resource. The individual nodes can be a single or multiprocessor system (such as a PC, a workstation, or a symmetric multiprocessor "SMP") with memory, I/O facilities, and an operating system.

(Col. 4, ll. 9-17). Thus, the cited portion of *Prael* discloses “a collection of interconnected stand alone computers...working together as a single integrated computing resource.” (Col. 4, ll. 9-17). Merely disclosing stand alone computers (which *Prael* calls “nodes”) that “work together” as a single integrated computing resource does not teach, suggest, or disclose that “**each node compris[es] a switching fabric integrated to a card**” as recited in Claim 1.

Therefore, the proposed *Blumrich-Prael* combination fails to disclose, teach, or suggest “a plurality of cluster agents, each cluster agent associated with one of a plurality of nodes, each node comprising a switching fabric integrated to a card and at least two processors integrated to the card” as recited in Claim 1.

In response to these arguments, the Examiner appears to rely on *Prael*, stating “*Prael* (Column 4, lines 7-20) does directly state that a node can be ‘a symmetric multiprocessor.’ Thus, the nodes do possess a switching fabric as it is necessary for the communication between multiple processors on a single board.” *Final Office Action* at 12-13. However, the Examiner has provided no evidence that this is true even now, let alone at the time of Applicants’ invention. In particular, the Examiner has provided no evidence that the claimed “switching fabric” is indeed necessary for the communication between multiple processors on a single board of a symmetric multiprocessor, as alleged by the Examiner. The cited portion of *Prael* certainly does not mention any inclusion of a switching fabric integrated to the card. To the extent the Examiner is relying upon “common knowledge” or “well known” principles to establish the rejection, Applicants request that a reference be provided in support of this position pursuant to M.P.E.P. § 2144.03. Alternatively, to the extent the Examiner maintains this rejection based on an “Official Notice” or other information within the Examiner’s personal knowledge, Applicants respectfully request that the Examiner cite a reference as documentary evidence in support of this position or provide an affidavit in accordance with M.P.E.P. § 2144.03 and 37 C.F.R. 1.104(d)(2).

For at least these reasons, Applicants respectfully request reconsideration and allowance of independent Claim 1 and its dependent claims. For at least certain analogous reason, Applicants respectfully request reconsideration and allowance of independent Claims 12 and 23 and their dependent claims.

III. The Separately-Rejected Dependent Claims are Allowable

The Examiner rejects Claims 4-5, 8, 10-11, 15-16, 19-22, 26-27, and 30-33 under 35 U.S.C. § 103(a) as being unpatentable over *Blumrich* in view of *Prael* and further in view of “The Cactus Worm: Experiments with Dynamic Resource Discovery and Allocation in a Grid Environment” by Allen, et al. (“*Allen*”). The Examiner rejects Claims 6-7, 17-18, and 28-29 under 35 U.S.C. § 103(a) as being unpatentable over *Blumrich* in view of *Prael* and *Allen*, and further in view of U.S. Publication No. 2003/0217105 A1 by Zircher, et al. (“*Zircher*”). Applicants respectfully traverse these rejections.

Claims 4-8, 10-11, 15-22, 26-33 depend from independent claims shown above to be allowable. The Examiner has not alleged that the cited portions of *Allen* and *Zircher* cure the deficiencies of *Blumrich* and *Prael* discussed above with respect to Claim 1. Thus, dependent Claims 4-8, 10-11, 15-22, 26-33 are allowable at least because they depend from allowable independent claims. In addition, dependent Claims 4-8, 10-11, 15-22, 26-33 recite further patentable distinctions over the proposed combinations.

As just one example, the proposed *Blumrich-Prael-Allen* combination does not disclose, teach, or suggest “determin[ing] dimensions of the job based, at least in part, on the one or more job parameters” and “dynamically allocat[ing] the particular subset based, at least in part, on the determined dimensions,” as recited in Claim 10. Dependent Claims 21 and 32 recite certain analogous limitations. The Examiner relies on *Allen* for this portion of Claim 10. *Allen* generally discloses mechanisms for adaptive resource selection in a computing grid environment. (Abstract). The cited portion of *Allen* describes mapping a computational task to available processors within a workgroup. (Introduction, ll. 4-8). Specifically, the cited portion of *Allen* states:

[A] computational task might be mapped initially to available processors within a workgroup, but then, as either the characteristics of the computation and/or resource availability change, extend or migrate to other resources available within a physical or “virtual” organization -- and/or to resources provided by a commercial computational services provider.

(Introduction, ll. 4-8). Merely mapping a computational task to available processors and, as characteristics change, extending to other resources, as disclosed in *Allen*, does not teach, suggest, or disclose “**determin[ing] dimensions** of the job” or “dynamically allocat[ing] the particular subset based, at least in part, on the **determined dimensions**” as recited in Claim 10. The other cited references fail to cure this deficiency of *Allen*. Thus, the cited references fail to teach, suggest, or disclose “determin[ing] dimensions of the job based, at least in part, on the one or more job parameters” and “dynamically allocat[ing] the particular subset based, at least in part, on the determined dimensions” as recited in Claim 10. Accordingly, the rejection of Claims 10, 21, and 32 should be withdrawn.

In response to these arguments, the Examiner states that “it does precisely state in *Allen* (Introductions, lines 4-8) that as the system dynamically reallocates the load ‘as either

the characteristics of the computation and/or resource availability change.’ The characteristics of the computation encompass the dimensions of the jobs.” *Final Office Action* at 13. However, even assuming for the sake of argument only that the “characteristics of the computation” can be equated to the claimed “dimensions of the job” (which Applicants do not concede), *Allen* does not disclose any determination of such “characteristics of the computation” as explicitly recited in Claim 10. Furthermore, to the extent the characteristics of the computation encompass the dimension of the job, as alleged by the Examiner, what in *Allen* would constitute the parameters of the job upon which the determined dimensions of the job are (at least in part) based? Applicants respectfully submit that it would not make sense for the Examiner to resort to citing another reference as allegedly disclosing the claimed job parameters of a job request (as the Examiner does in this case) when the Examiner is relying on *Allen* as allegedly disclosing “determin[ing] dimensions of the job **based, at least in part, on the one or more job parameters,**” as recited in Claim 10. In the cited portion of *Allen*, there is simply no disclosed step of “**determin[ing] dimensions of the job based, at least in part, on the one or more job parameters,**” let alone “dynamically allocat[ing] the particular subset **based, at least in part, on the determined dimensions**” as recited in Claim 10.

Accordingly, Applicants maintain that the rejection of Claims 10, 21, and 32 should be withdrawn.

Regarding the remaining separately-rejected dependent claims, to avoid burdening the record and in view of the clear allowability of independent Claims 1, 12, and 23, Applicants do not discuss the further patentable distinctions recited in these claims. However, Applicants reserve the right to discuss these distinctions in a future Response or on Appeal, if appropriate. Furthermore, Applicants do not admit that the proposed combinations of references are possible or that the Examiner has provided an adequate explanation for combining or modifying the references in the manner proposed.

For at least these reasons, Applicants respectfully request reconsideration and allowance of Claims 4-8, 10-11, 15-22, and 26-33.

IV. Independent Claims 37-39 are Allowable

The Examiner rejects Claims 37-39 under 35 U.S.C. § 103(a) as being unpatentable over *Blumrich* in view of Prael, and in further view of Official Notice. Applicants respectfully traverse these rejections.

First, Claims 37-39 are allowable over the cited references for at least certain reasons analogous to those discussed above with respect to independent Claims 1, 12, and 23.

Second, Applicants respectfully traverse the Official Notice taken by the Examiner. While in limited circumstances an examiner may take official notice of facts not in the record or rely on “common knowledge” in making a rejection, “such rejections should be judiciously applied.” *See* M.P.E.P. § 2144.03. It is not appropriate for an examiner to take official notice of facts without citing a prior art reference “where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known. For example, assertions of technical facts in the areas of esoteric technology or specific knowledge of the prior art must always be supported by citation to some reference work recognized as standard in the pertinent art.” *Id.* (citing *In re Ahlert*, 165 U.S.P.Q. 418, 420-21 (C.C.P.A. 1970)). To the extent that the Examiner maintains this rejection based on “Official Notice,” “well-known art,” “common knowledge,” or other information within the Examiner’s personal knowledge, Applicants respectfully request that the Examiner cite a reference as documentary evidence in support of this position or provide an affidavit in accordance with M.P.E.P. § 2144.03 and 37 C.F.R. § 1.107.

Specifically, the Examiner states, “the purpose of multi-processing is to improve the efficiency of processing tasks and therefore, not having the two processors communicate would require a third authority to designate the tasks, just increasing overhead of the system and therefore, it would have been obvious to a person of ordinary skill in the art, at the time of the invention, to modify the teachings of the combination of *Blumrich* and *Fung* to utilize processors that don’t co-communicate.” *See Final Office Action* at 12. Applicants do not necessarily agree. For example, “increasing overhead of the system” may provide a reason that a person of ordinary skill in the art would **not** include a central authority, and would instead use processors that communicate via either second processor on the particular second

card. As another example, it is not necessarily technically possible that one of ordinary skill in the art at the time of Applicants' invention could have simply modified existing systems in the manner suggested by the Examiner. Applicants continue to request that the Examiner produce a reference in support of his position pursuant to M.P.E.P. § 2144.03.

For at least these reasons, Applicants respectfully request reconsideration and allowance of Claims 37-39.

V. Request for Evidentiary Support

Should a rejection based on any of the above asserted rejections be maintained, Applicants respectfully request appropriate evidentiary support. Additionally, if the Examiner is relying upon "common knowledge" or "well known" principles to establish the rejection, Applicants request that a reference be provided in support of this position pursuant to M.P.E.P. § 2144.03. Furthermore, to the extent that the Examiner maintains any rejection based on an "Official Notice" or other information within the Examiner's personal knowledge, Applicants respectfully request that the Examiner cite a reference as documentary evidence in support of this position or provide an affidavit in accordance with M.P.E.P. § 2144.03 and 37 C.F.R. 1.104(d)(2).

VI. No Waiver

All of Applicants' arguments are without prejudice or disclaimer. Additionally, Applicants have merely discussed example distinctions from the references cited by the Examiner. Other distinctions may exist, and Applicants reserve the right to discuss these additional distinctions in a later Response or on Appeal, if appropriate. By not responding to additional statements made by the Examiner, Applicants do not acquiesce to the Examiner's additional statements. The example distinctions discussed by Applicants are sufficient to overcome the Examiner's rejections.

Conclusion

Applicants have made an earnest attempt to place this Application in condition for allowance. For at least the foregoing reasons, Applicants respectfully request full allowance of all pending claims.


If the Examiner feels that a telephone conference would advance prosecution of this Application in any manner, the Examiner is invited to contact Chad D. Terrell, Attorney for Applicants, at (214) 953-6813 at the Examiner's convenience.

Although Applicants believe that no fees are due, the Commissioner is hereby authorized to charge any necessary fees and credit any overpayments to Deposit Account No. 02-0384 of Baker Botts L.L.P.

Respectfully submitted,

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